APRIL/MAY 2025

23PEPH24C — ADVANCED OPTICS

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

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1. Define optical activity.
2. What is meant by analyze?
3. Write the applications of LASER.
4. List out the characteristic of Laser.
5. Define numerical aperture.
6. List out the applications of fiber optic sensor.
7. Give the principle of self focusing light.
8. Define phase matching.
9. What is inverse Zeeman effect?
10. State stark effect.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) What is interference of polarized light on quarter half wave plates?

Or

(b) Describe the polarization by double refraction.

12. (a) What are the components of the laser and resonator? Explain.

Or

(b) Explain the Ruby Lasers and its applications.

13. (a) Describe the single and multi-mode fibers.

Or

(b) Explain the glass and optical fibers.

14. (a) What is harmonic generation? Explain in detail.

Or

(b) Write a short on optical mixing.

15. (a) Explain cotton-motor on effect.

Or

(b) What is Kerr electro-optic effect? Briefly explain.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the production of Polarized light.

17. Give details on

(a) He-Ne lasers

(b) CO-laser and its Applications

18. Describe the fiber-optic sensors with precision displacement and vibration sensor.

19. Write short note

(a) Third Harmonic Generation

(b) Parametric Generation light

20. Write detailed notes on Magneto optical effect and Pockel's Electro optical effect?

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